



STANDARD TECHNICAL PARTICULARS FOR

132 kV Single- CORE XLPE Insulated CABLE 800 Sqmm Copper

1. Type of Cable	:	132kV XLPE Cable
2. Standard according to which cable is manufactured	:	IEC 60840
3. Standard according to which cable is tested	:	IEC 60840
4. Rated Voltage (Uo/U)	:	76/132 kV
5. Impulse Withstand Voltage 1.2/50 micro-second wave	:	650 kVp
6. Power Frequency Withstand Voltage	:	190 kVrms (30 minutes)
7. Conductor		
a) Material	:	Plain Annealed Copper
b) Grade	:	Electrical Grade
c) Nominal Cross-sectional area	:	630 sq.mm.
d) Minimum No. of wire & dia. of wire (Approx.)	:	53 (Min.) / 4.720 mm (for 55-W) (Approx.) or 3.850 mm (for 81-W) (Approx.)
e) Flexibility Class as per IEC 60228	:	Class 2
f) Shape of Conductor	:	Circular Compacted
g) Maximum dielectric stress at the conductor	:	6.0 kV/mm
h) Approx. overall diameter	:	29.8 mm
i) Longitudinally moisture barrier of conductor	:	Yes, with water swellable yarn and Semi-conductive water swell able tape applied with 50% overlap
8. Conductor Screen		
a) Material & type	:	Semi-conductive XLPE
b) Nominal thickness	:	1.50 mm
c) Minimum average thickness	:	1.50 mm
d) Max. dielectric stress at conductor screen	:	6.0 kV/mm
9. XLPE Insulation		
a) Thickness of insulation & tolerance	:	18.0 mm (Nominal) 16.2 mm (Minimum Spot)
b) Minimum insulation resistance at 90°C conductor temperature	:	1.077 Mohm-km
c) Designed maximum dielectric stress at insulation surface	:	3.08 kV/mm
d) Dia. over XLPE insulation	:	70 mm (Approx.)
10. Insulation Screen		
a) Material & type	:	Semi-conductive XLPE
b) Nominal thickness	:	1.20 mm
c) Minimum average thickness	:	1.20 mm

11. Nominal dia. Over insulation screen	:	72.4 mm (Approx.)
12. Conducting Longitudinal Moisture Barrier over Insulation screen		
a) Material	:	Semi-conductive water swell able tape applied with 50% overlap
b) Nominal thickness	:	0.3 mm (Approx.)
13. Concentric Metallic Screen		
a) Material & Type	:	Plain annealed copper wire
b) Nominal Diameter of Wire	:	1.82 mm (Approx.)
c) Screen current corresponding to the rated current of cable with both ends of screen earthed (Cables laid in trefoil)	:	269 A
d) Number of Wires	:	84 (Approx.)
e) Lay length of Copper wire screen (Approx.)	:	550 \pm 50 mm
14. Binder		
a) Material & type	:	Plain annealed copper contact tape
b) Nominal thickness	:	0.1 mm (Approx.)
c) Lay length of Copper contact tape	:	not more than 30 mm
15. Non-conducting Longitudinal Moisture Barrier over Binder		
a) Material	:	Non-conductive water swell able tape
b) Nominal thickness	:	applied with 50% overlap 0.3 mm (Approx.)
16. Radial Moisture Barrier over Non-Conducting Longitudinal Moisture Barrier		
a) Material	:	
b) Nominal thickness	:	Copolymer-coated (both sides) Aluminum Tape 0.203 mm (Approx.)
17. Nominal radial clearance allowed under radial moisture barrier	:	N/A
18. Protective outer serving		
a) Type of composition	:	Black HDPE ST7 with
b) Nominal thickness & tolerance	:	graphite coating or extruded conductive layer 3.8 mm (Nominal)
c) Test Voltage at Works	:	3.13 mm (Minimum Spot) 25kVdc (Spark test)
19. Nominal overall dia. of completed single core cable	:	88 mm (Approx.)
20. Nominal weight per metre of complete cable	:	12.96 kg/m (Approx.)
21. Short circuit capacities with maximum allowable conductor temperature at the commencement		
a) 0.5 second duration	:	
b) 1 second duration	:	127.49 kA
c) 2 second duration	:	90.14 kA
d) 3 second duration	:	63.73 kA 52.04 kA

22. Minimum bending radius for cable laying		
a) Direct burial in ground	:	1800 mm
b) In ducts / pipes	:	1800 mm
c) On racks	:	1800 mm
d) At Terminations (with former)	:	1355 mm
23. Maximum D.C. resistance of conductor per km. at 20°C	:	0.0283 ohm/km at 20°C
24. Maximum A.C. resistance of conductor per km. at 90°C (Trefoil laying)	:	0.040 ohm/km
25. Equivalent star reactance per km of 3-Phase circuits at 50 Hz.	:	0.110 ohm/km
26. Maximum electrostatic capacitance per km of cable	:	0.175×10^{-6} F/km
27. Maximum charging current	:	5.10 A/km
28. Maximum continuous current carrying capacity per cable installed in ground (Both ends of the circuit bonded & earthed) (Ground Temp 30°C, Depth 1.37 m, Rho 1.5 °C-m/W)	:	574 A
29. Maximum continuous current carrying capacity per cable when drawn into pipes (Both ends of the circuit bonded & earthed) (Ground Temp 30°C, Depth 1.37 m, Rho 1.5 °C-m/W)	:	559 A
30. Short time current carrying capacity which will permit a further 10% overload for two hours (Both ends of the circuit bonded & earthed)	:	773 A
31. Short time current carrying capacity which will permit a further 10% overload for two hours, but with cables drawn into pipes (Both ends of the circuit bonded & earthed)	:	776 A
32. Maximum Power Factor of charging kVA of cable when laid direct in the ground at normal voltage and frequency at conductor temperature of 15, 30, 45, 65 & 95 °C	:	0.001
33. Maximum dielectric power loss of cable per km of 3-Phase circuit laid direct in ground at normal voltage, frequency and maximum conductor temperature	:	1167 W/km (3-Phase)
34. Maximum Power Factor of charging kVA of cable at normal frequency and at a conductor temperature of 20°C and at 0.5, 1.0, 1.5, 2.0 times nominal voltage	:	Maximum increment between 0.5U ₀ and 2.0U ₀ not exceed 0.002

35. Sheath Loss of cable per km of 3-Phase circuit at normal voltage, frequency at maximum continuous current rating
- a) Laid direct in ground (item 30 above) : 7.41 kW/km
- b) Drawn into ducts/pipes : 7.55 kW/km
36. Impedance per km of 3-Phase circuit at 50 Hz and maximum conductor temperature
- a) Positive & Negative sequence impedance : $0.040 + j 0.110 \text{ ohm/km}$
- b) Zero sequence impedance : $0.104 + j 0.0493 \text{ ohm/km}$
37. Maximum partial discharge at appropriate Test Voltage (mention Test Voltage) : 10 pC at $1.73U_0$
38. a) Phase to ground characteristic impedance at 50 to 200 kHz : 43.1
(Screening factor)
39. a) Nominal drum length of cable with Poly-Al Sheathing : 500 m per drum
- b) Tolerance : $\pm 5\%$ of Nominal drum length
40. Appropriate shipping weight and size of Steel drums : 8.5 MT (Gross weight per drum) Approx.
Steel reel 257 x 220 cm (Approx.)
